

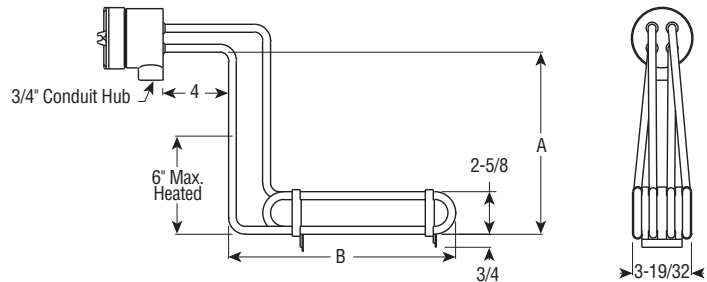
# Chromalox®

## Installation Instructions and RENEWAL PARTS IDENTIFICATION

### SERVICE REFERENCE

DIVISION 4	SECTION TBL
SALES REFERENCE	PD433
161-058061-001	
DATE	MARCH, 1984

## Type TBL and TBL-A Over-The-Side Salt Bath Heaters



Model		Volts (Single Phase)	kW 20 W/In <sup>2</sup>	Dimensions (In.)	
Steel Sheath	INCOLOY® Sheath			A	B
TBL-1301	TBL-A-131	240 or 480	3	11-1/8	13-7/8
TBL-4501	TBL-A-451		4.5	11-1/8	15
TBL-6001	TBL-A-601		6	11-1/8	20-5/16
TBL-7501	TBL-A-751		7.5	14-5/8	25-9/16

### GENERAL

Chromalox type TBL and TBL-A over-the-side immersion heaters are designed primarily for salt baths but are available in a variety of sheath materials and watt densities for most liquids and viscous materials..

**WARNING: It is the responsibility of the purchaser of the heater to make the ultimate choice of sheath material based upon his knowledge of the chemical composition of the corrosive solution, character of the materials entering the solution, and controls which he maintains on the process. Chromalox cannot warrant any electric immersion heater against failure by sheath corrosion if such failure is the result of operating conditions beyond our control.**

#### 1. Heater Construction Characteristics

- High quality Nichrome resistance wire held in place by compacted Magnesium Oxide in various sheath materials.
- Medium watt densities.
- Steel terminal box painted with heat and acid-resistant paint.
- Lightweight yet heavy duty.
- Riser type construction puts the heat at the bottom inducing natural "stirring action" and evenly distributed temperatures.

**CAUTION: Users should install adequate controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of the installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.**

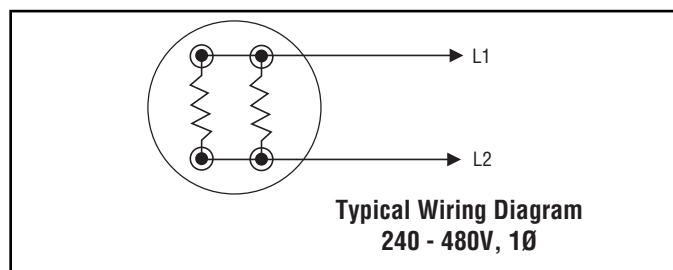
### INSTALLATION

- Before installing the type TBL heater, inspect it for possible damage which may have occurred during shipment. Also, check to insure that the line voltage is the same as that stamped on the nameplate.
- IMPORTANT:** Mount heater in the tank so that the liquid level will always be above the effective heated portion of the heater. If the heater is not properly submerged, it will overheat and damage the heating elements and create a possible fire hazard due to excessive sheath temperatures.
- Where work will pass over or near equipment, additional protection, such as a metal guard, may be needed.
- In an electroplating operation the heaters are not, under any circumstance, to be placed between the electrodes and the work.
- When melting solids by direct immersion, a surface vent should be provided to allow gases to escape. Operate the heater on half voltage until melted material completely covers the heater area.
- A drip loop is recommended to minimize passage of moisture along wiring into terminal box and connections.
- DANGER: Hazard of Fire.** Since these heaters are capable of developing high temperatures, extreme care should be taken to:
  - Use Explosion-resistant terminal housings in hazardous locations. See Chromalox catalog for selection of explosion-resistant terminal enclosures for hazardous locations.
  - Avoid contact between heater and combustible material.
  - Keep combustible materials far enough away to be free of the effects of high temperatures.

## WIRING

**CAUTION: Hazard of Electric Shock. Any installation involving electric heaters must be effectively grounded in accordance with National Electrical Codes to eliminate shock hazard.**

1. Electrical wiring to heater must be installed in accordance with the National Electrical Code and local electric codes.
2. When element wattages are not equal, heaters must not be connected in series.
3. Electrical wiring to heater should be contained in Rigid Conduit or in sealed Flexible Metal hose to keep corrosive vapors and liquid out of the terminal housing. Conduit should terminate at some remote area free of corrosive vapors. If high humidity is encountered, the conduit should slope away from the heater terminals to keep condensate away from the heater.
4. If flexible cord is employed with the heater, a watertight connector should be used for entry of the cord into the terminal box.



5. Make sure heater is grounded by attaching ground conductor, traceable back to service entrance, to the ground terminal located inside the terminal box. If heater is used in an electroplating tank, the heater should be grounded externally to the tank wall to minimize stray plating currents in heater sheath that may cause sheath corrosion.

## OPERATION

1. Do not operate heater at voltages in excess of that stamped on the heater since excess voltage will shorten heater life.
2. Always maintain a minimum of 2" of solution above the heated portion of the element to prevent exposure of the effective heated length. If the heater is not properly submerged, it may overheat and shorten heater life. Do not operate heater if dry.
3. Sludge should not be allowed to build-up to the point where it contacts heater as this can lead to premature heater failure. Sludge legs are recommended. Heater must not be operated in sludge.
4. If heater is inactive for a prolonged period or subjected to excessive moisture during shipments, energize at half voltage for a period of time (generally overnight) before operating at rated voltage.

## MAINTENANCE

**CAUTION: Hazard of Severe Shock. Disconnect all power to heater before servicing or replacing heaters.**

1. Heaters should be checked periodically for coating and corrosion buildup and cleaned if necessary.
2. Tank should be checked regularly for sediment around the elements as sediment can act as an insulator and shorten heater life.
3. Check for loose terminal connections.
4. If corrosion is indicated in the terminal housing, check terminal box gasket and replace if necessary as well as checking the conduit layout to correct the conditions that allow corrosion to enter the terminal housing.

### Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

**Chromalox**<sup>®</sup>  
**PRECISION HEAT AND CONTROL**

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